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NORTH AMERICAN AIR DEFENSE COMMAND

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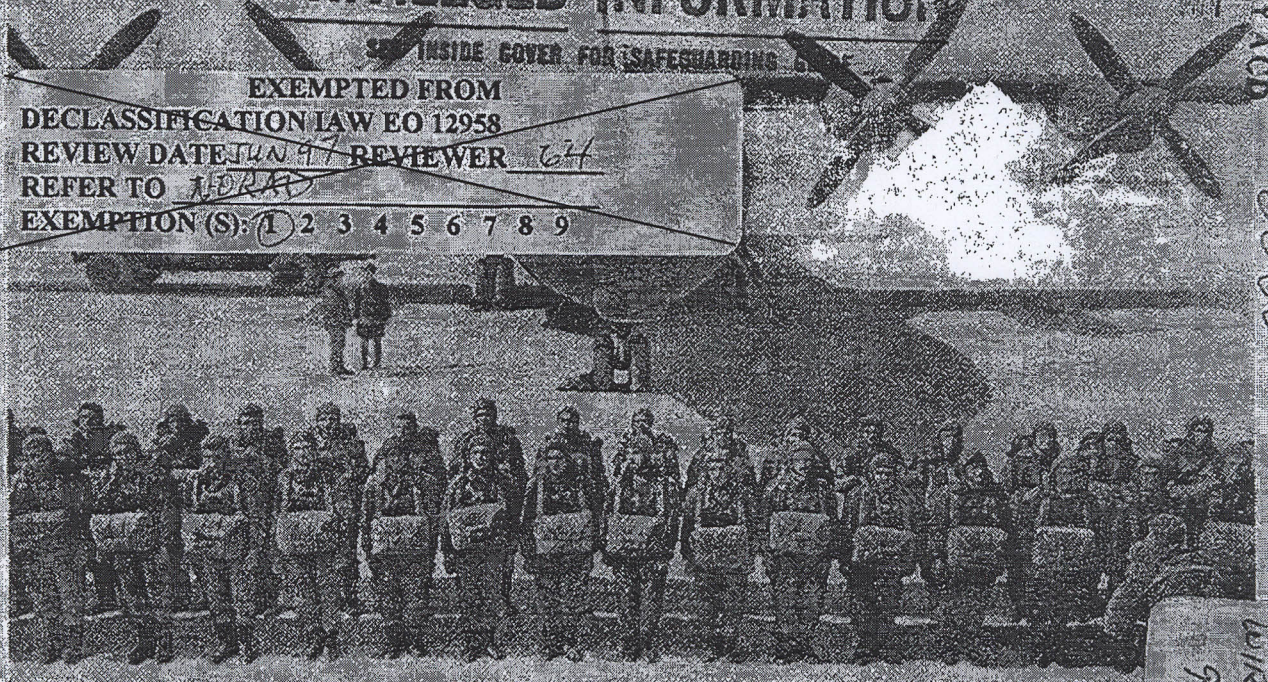

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NORAD Weekly Intelligence Review

RETURN TO HQ USAF, WASHINGTON 25, D.C.

KHQ 607-208

Issue No. 15/65, 9 April 1965

The WIR in Brief

Portion identified as non-responsive to the appeal

Portion identified as non-responsive to the appeal

Space

CHICOM SOLID LUBRICANT RESEARCH HAS POSSIBLE SPACE APPLICATION

Relatively advanced paper on subject published.

TUMBLE RATES MAY BE HELPFUL IN IDENTIFYING UPPER STAGING

Lunik and Venik upper stages have characteristic tumble rates.

COSMOS 32 RECONNAISSANCE SATELLITE PARTICULARLY ACTIVE OVER NORAD AREA

Over half of known payload activity occurred over US.

SOVIET PRESS GIVES MINOR PLAY TO U.S. SPACE FEATS

Ranger 9 and Gemini shots announced; little data given on former, latter belittled.

UNMANNED ORBITING ASTRONOMICAL OBSERVATORY APPARENTLY NOT PLANNED

Soviet OAO-type mission will be manned.

LUNAR LAUNCH POSSIBLE ABOUT 9-10 APRIL

Launch more likely on 10th than on 9th.

Portion identified as non-responsive to the appeal

COVER: Soviet paratroopers lined up before CUB/AN-12 transport (from Red Star). (OFFICIAL USE ONLY)

NOTE: Pages 24, 26, 27, 30, 31, 34, 35, 38, and 39 of this issue are blank.

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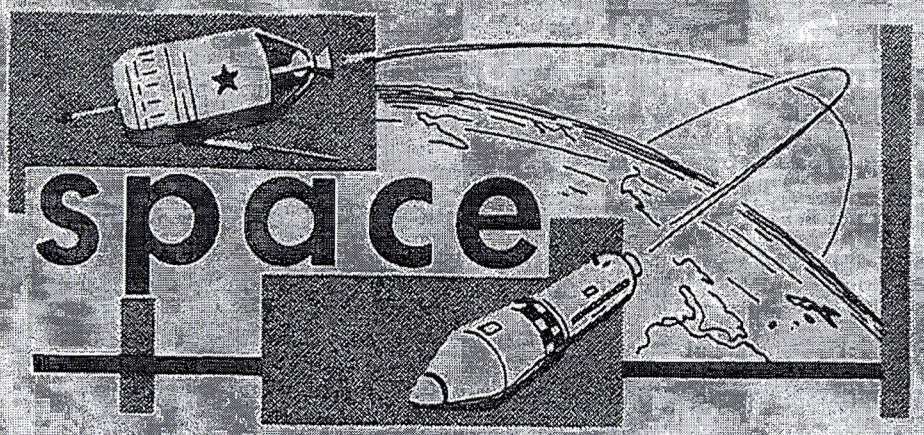

significant intelligence on space developments and trends

Portion identified as non-responsive to the appeal

Tumble Rates May Be Helpful in Identifying Upper Staging

Analysis of RADINT indicates that the two types of upper staging used in connection with the SS-6 ICBM booster-sustainer to inject most Tyuratam-launched payloads into orbit have characteristic tumble rates. Thus, it may be possible to identify upper staging of Tyuratam launches by their rate of tumble when the usual indicators, such as telemetry, are lacking.

When the tumble rates of the upper stages of 18 Tyuratam launches were plotted against time, the following trends became evident: (Chart on page 33.)

- The tumble rates tended to increase during about the first 20 hours in orbit.
- Without exception, the lighter Lunik stage tumbled much faster than the heavier Venik stage.

The mechanics which produce these pattern variations are not yet clear, but there are three known factors which can influence the free-flight dynamics of orbiting rocket staging:

- The impulse which results from payload separation may impart some angular velocity to the upper stage. The magnitude of this impulse could be more or less distinct for each type of rocket stage.
- The mass moment of inertia of the rocket structure will be a determining factor in the tumble rate. Thus, in general, a long, slender rocket stage can be expected to tumble more slowly than a stubbier stage. The Lunik and Venik are believed to be of the same diameter, but the Venik is believed to be longer than the Lunik and should, therefore, rotate more slowly, given the same impulse.
- The venting of residual propellants after cut-off may generate a torque upon the orbiting rocket stage. This could explain the increase in tumble rate during the first 20 hours in orbit.

(FTD)

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Cosmos 32 Reconnaissance Satellite Particularly Active Over NORAD Area

Over two thirds of the known payload activity of Cosmos 32, Soviet recoverable vehicle which was launched from Tyuratam (TT) on 10 June 1964 and de-orbited on Revolution 128 after nearly 8 days in orbit, occurred over the US and southern Canada. (Map on page 36.)

50X1 and 3, E.O.13526

(Maps showing locations of Cosmoses 20 and 35 during periods of known payload activity were shown, respectively, in WIRs 17/64 and 6/65.)

The second heaviest concentration of Cosmos 32 payload activity occurred over the Middle East. Other areas of possibly significant activity included Cambodia/Vietnam, the Demilitarized Zone in Korea, and the Straits of Gibraltar. There was a notable lack of activity over Africa south of the Sahara.

50X1 and 3, E.O.13526

An unprecedented 10 percent of Cosmos 32's payload activations occurred during descending passes.

Recoverable TT-launched Cosmoses, 27 of which have been launched to date, are believed to have been military photoreconnaissance vehicles; early members of the series were no doubt developmental, while those launched since early 1964 were probably operational satellites. These vehicles possibly also executed one or more other missions, including collection of ELINT, testing of space-vehicle systems, and collection of data on the near-Earth space environment. Cosmos 32 in particular is believed to have had an ELINT mission: [redacted] Orbit 3 indicates that this satellite could have monitored scan rates and frequencies of search radars while passing near or over Western Europe (see last week's WIR). It is not known yet whether ELINT was also collected over or in the vicinity of NORAD's area of responsibility.

(FTD; NORAD)

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Soviet Press Gives Minor Play to US Space Feats

The most notable recent US space events -- Gemini 3 and Ranger 9 -- were, as usual, reported in the Soviet press, but given only minor notice.

The following account of the Ranger 9 event was printed on the back page of Red Star of 26 March:

«Рейнджер» достиг Луны

НЬЮ-ЙОРК, 25 марта. (ТАСС). Вчера американский космический корабль «Рейнджер-9» достиг лунной поверхности в районе кратера Альфонс. С помощью установленной на борту корабля аппаратуры было сделано и передано на Землю большое число снимков поверхности нашего спутника.

The account states merely that the American spaceship Ranger 9 hit the Moon's surface in the area of the crater Alphonsus and that apparatus installed on the spaceship sent back to Earth a large number of pictures of the Moon's surface.

A somewhat longer account of the Gemini 3 event was printed in the 25 March issue of Izvestia (see page). This story appeared in a corner on the bottom of page 2.

Izvestia reported that the 3-orbit, 2-man flight was completed successfully and gave some factual data on the size of the capsule. Much of the account was given to belittling comment or innuendo. The preflight publicity of several weeks duration was interpreted as an attempt to draw attention away from the fact that the flight could not compare with Soviet

successes in mastering space. Izvestia intimated that the flight program was altered to include a manually controlled change in orbit solely because of "nervousness" of the US leadership at the achievements of the Soviets' Voskhod 2. The Soviet newspaper did not make it clear that orbital changes had been made successfully and that there were two of them; much less did it state explicitly that the changes in orbital inclination and altitude were the first for manned space vehicles. But Izvestia did take the trouble to mention the 24-minute hold in countdown caused by an oxygen leak and a TV narrator's explanation that the flight would be ended during the first orbit if the orbital parameters were defective.

The post-flight telephone conversation between President Johnson and the astronauts was reported as follows:

"President: Well, I'm glad that you have returned home.
"Young: Yes, the only thing wrong is that the flight didn't last long enough.
"President: We'll try to do something about that for you in the near future."

Izvestia's story concluded with the remark that American specialists admitted that the USSR is far out in front and that the US will not be able to duplicate the achievements of the Soviet cosmonauts Belyayev and Leonov in the next one, two, or perhaps even five manned flights.

The one possible bright spot in the Izvestia story was the remark that for two hours before the flight the telecameras of the big TV companies were trained on the launch pad and that commentators described the spaceship in detail; but even this reporting was marred by the failure to state explicitly that these pictures and comments were being broadcast throughout the US and some other nations while flight preparations were still under way, and that the actual lift-off was televised.
(Soviet press; NORAD)
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Unmanned Orbiting Astronomical Observatory Apparently Not Planned

The Soviets apparently are not planning an unmanned orbiting astronomical observatory (OAO) -- not to be confused with orbiting solar observatories (OSOs), two of which have been launched by the US.

Serge Borg, a Frenchaerospace journalist, gathered this impression, which is probably correct, while in the USSR. Recent unclassified descriptions of the future Soviet space program attributed to such authorities as the Chief Designer of Spaceships have not mentioned unmanned OAO-type satellites. Also, recent visitors to the USSR have found no work in progress which would appear to support development of an unmanned OAO. And

ПОЛЕТ КОСМОНАВТОВ США

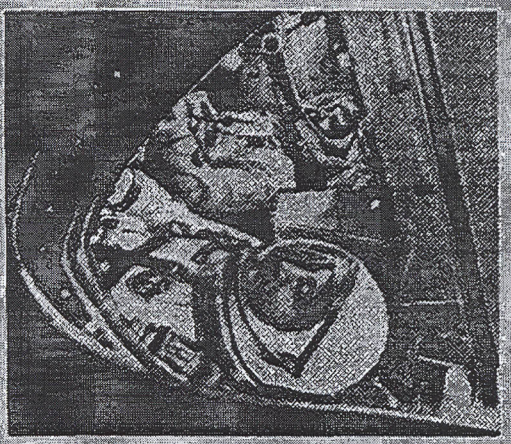
ВАШИНГТОН, 24 марта. (По телеф. от соб. корр.). Вчера состоялся полет американского космического корабля по программе «Джеминай» с двумя пилотами на борту. Совершив три витка вокруг Земли, капсула с находящимися в ней астронавтами Вирджилом Гриссомом и Джоном Янгом благополучно приводнилась в Атлантическом океане, примерно в двенадцати километрах от ближайшего спасательного корабля. Прибывшие к месту посадки самолеты доставили Гриссома и Янга на борт авианосца «Интрепид», который взял курс на мыс Кеннеди, откуда был произведен запуск космического корабля.

В течение нескольких недель американская печать писала о предстоящем полете, подогревая интерес к нему американцев, в известной мере утраченный из-за того, что полеты американских астронавтов не шли ни в какое сравнение с успехами Советского Союза в освоении космического пространства.

Гигантское достижение советских космонавтов Павла Беляева и Алексея Леонова вызвало нервозность среди руководителей программы «Джеминай». Они поставили своей целью во что бы то ни стало выдержать график подготовки полета и решили включить в его программу изменение первоначальной орбиты с помощью ручного управления.

За два часа до отлета Гриссома и Янга телекамеры крупнейших телевизионных компаний были направлены на стартовую площадку, где находилась ракета «Титан-2», с помощью которой двухместный космический корабль должен был быть выведен на орбиту. Комментаторы подробно описывали кабину корабля, напоминающую колокол средней величины. Высота ее около 6 метров, диаметр у основания — около трех метров. Вес капсулы примерно 3,4 тонны.

За полчаса до старта с координационного центра поступило сообщение об утечке кислорода в первой ступени ракеты. Запуск был задержан на 24 минуты. Наконец, ракета взмыла вверх. Новая задержка была с сообщением о выходе корабля на заданную орбиту. Корреспондент телевизионной компании «Си-Би-Эс» Уолтер Кронкайт поспешил сообщить, что в случае неполадок Гриссом и Янг могут совершить только один виток вокруг Земли и им будет дана команда к спуску. Но этого не случилось. Пробыв в космосе 4 часа 54 минуты и проделав 76 тысяч миль, Гриссом и Янг благополучно завершили полет.



В. Гриссом и Дж. Янг в капсуле корабля перед стартом.

Вскоре состоялся разговор по телефону астронавта Янга с президентом Джонсоном. Между ними был такой диалог:

Президент: Ну что ж, я рад, что вы снова вернулись домой.

Янг: Да, но одно только плохо: полет продолжался недостаточно долго...

Президент: Мы попытаемся сделать для вас это в недалеком будущем.

Полет Гриссома и Янга, безусловно, является еще одним шагом вперед в выполнении американской космической программы. В то же время американские специалисты в области космических полетов и ракетостроения признают, что Советский Союз ушел далеко вперед и понадобится, вероятно, еще не один, не два, а, может быть, даже и не пять полетов американских космонавтов, прежде чем им удастся повторить достижение наших замечательных соколов — Павла Беляева и Алексея Леонова.

А. ИЦКОВ.

Soviet astronomers have uniformly denied knowledge of any such project. In January 1963, Academician Keldysh, President of the Soviet Academy of Sciences, said that the Soviet Union did not need telescopes on satellites but should obtain space observational data from the US.

Earlier reports that the Soviets were planning OAOs may refer to future manned space flights, the crews of which might include an astronomer. The Voskhod 1 flight, which carried a scientist and a physician in addition to a "cosmonaut-pilot," is a step in this direction.

The US plans to launch the first of a series of OAOs late this year. (CIA, NORAD)

~~(CONFIDENTIAL)~~

Lunar Launch Possible About 9-10 April

The Soviets may launch a lunar probe on 9 or 10 April when lunar lighting conditions will be optimum for a soft-landing of an instrumented package on the Moon, or for a lunar orbiter.

The Soviets are believed to have failed in one unannounced lunar launch earlier this year.

Cosmos 60, which the Soviets launched on 12 March -- when the lunar launch "window" was last "open" -- had all the known characteristics of a Soviet lunar probe attempt. The mission apparently failed when the 4th stage did not ignite. The Soviets announced the launch, thus satisfying UN reporting requirements, but claimed that the vehicle was a Cosmos-series research vehicle. It decayed 5 days after launch without accomplishing any mission other than achievement of orbit.

The 9-10 April period is the last one favorable for a Soviet lunar launch until November or December. Judging by previous Soviet choices, a launch is more likely on the 10th than on the 9th.

Lunar launches before November or December are possible from the standpoint of propulsion, but Earth-Moon geometry makes them less favorable for the Soviets from the standpoint of communications and control from the USSR.

(NORAD)

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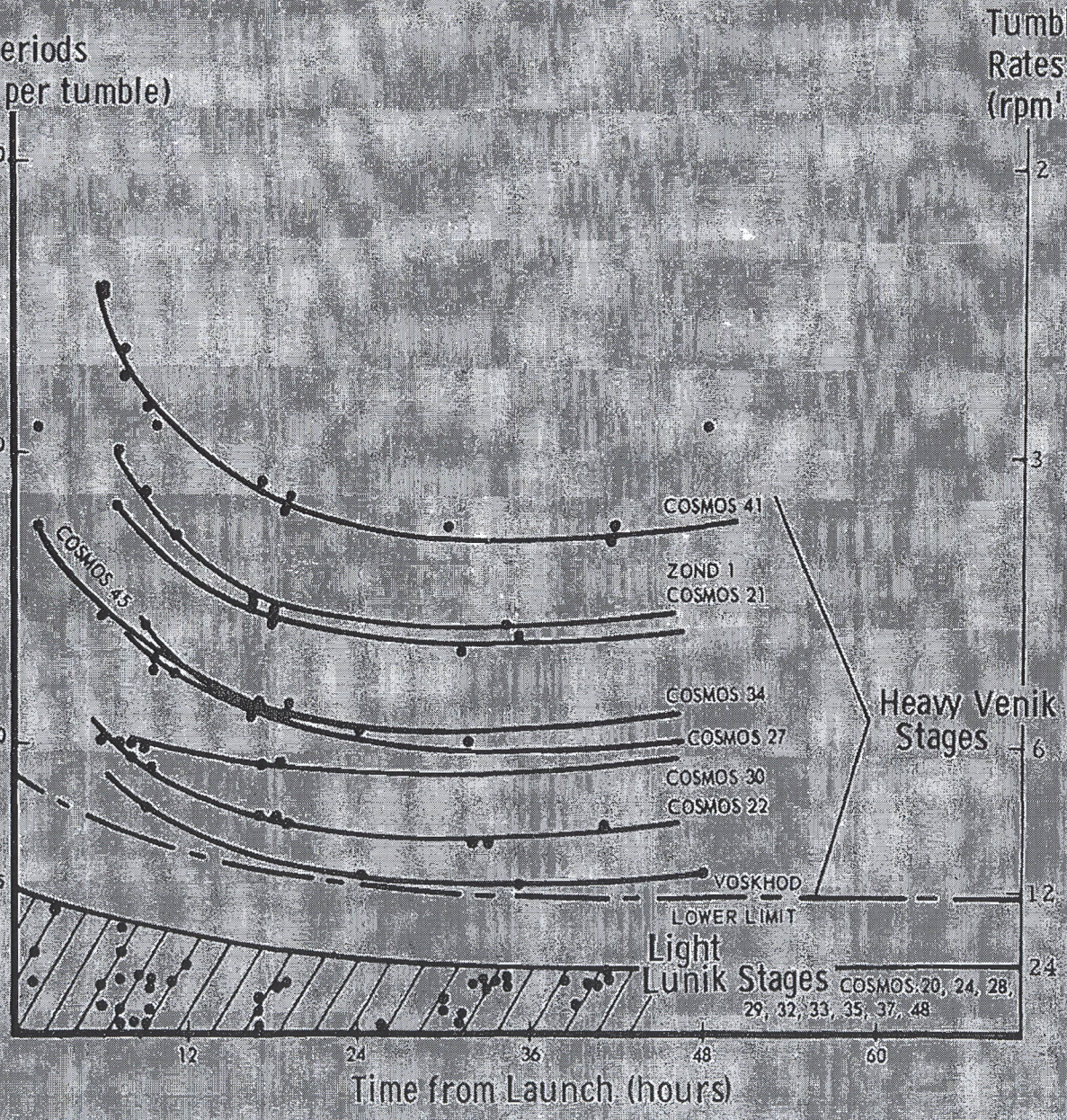
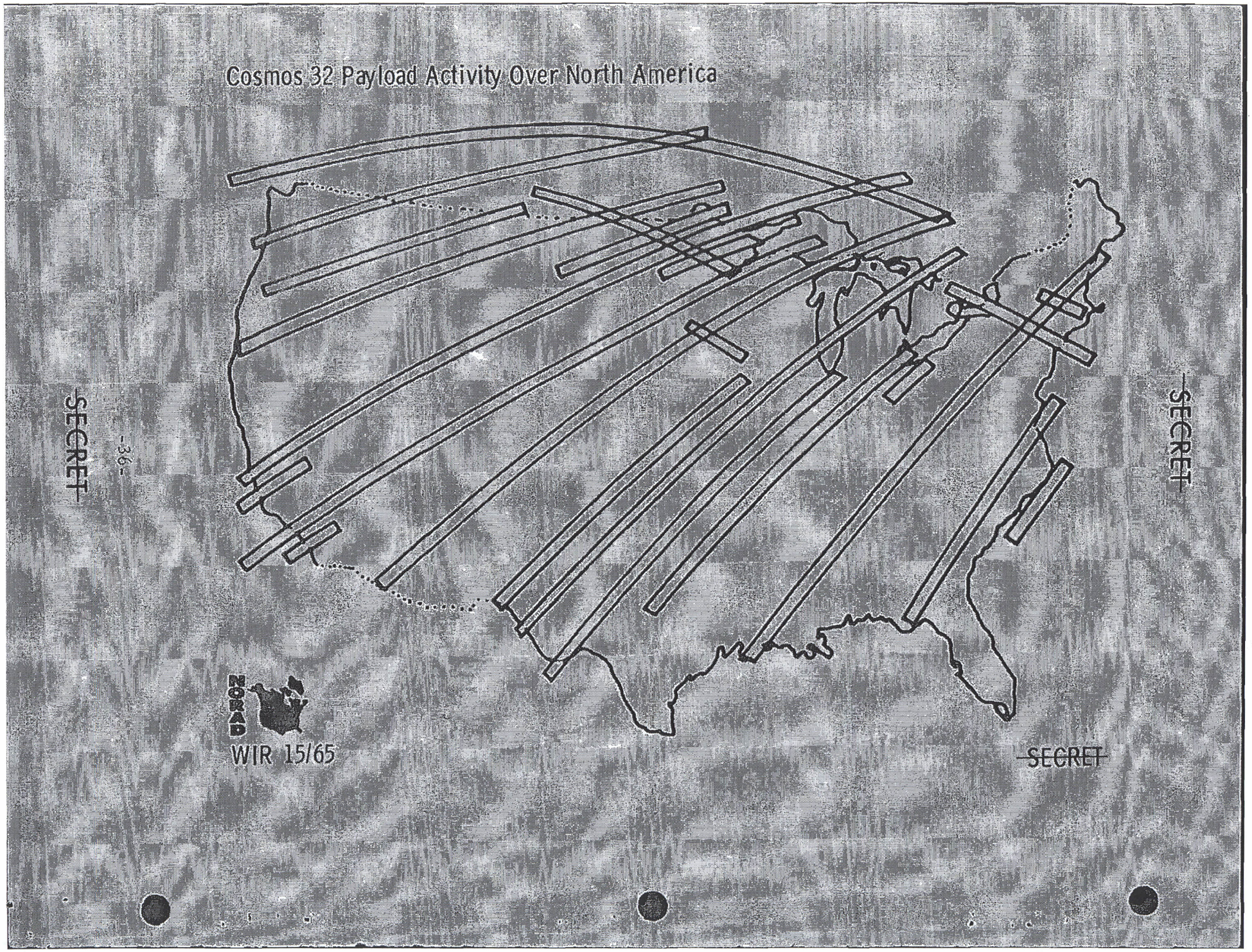
NORAD

WIR 15/65

Tumble Rates and Periods -- "Lunik" and "Venik" Rocket Stages




Cosmos 32 Payload Activity Over North America
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